CH.8 WS #1 Integration by Parts / L'Hopital's Rule Name _____

Use tabular method to solve each

1) $\int x^2 e^x \, dx =$

2) $\int x^3 \sin x \, dx =$

3) $\int x \cdot \sec^2 x \, dx =$

Use integration by parts to solve each

4) $\int x^{10} \ln x \, dx =$

5) $\int \arctan x \, dx =$

6) $\int_1^4 x^{3/2} \ln x \, dx =$

7) $\int e^{6x} \sin x \, dx =$

Find each integral

8) $\int \frac{x+6}{x^2+25}\,dx =$

9) $\int \frac{x+16}{x-16}\,dx =$

10) $\int \frac{8}{x^2-10x+34}\,dx =$

11) $\int \frac{x^2+x-9}{x+5}\,dx =$

12) $\int_{-3}^{4} \frac{70}{x^2+6x+58}\,dx =$

13) $\int \frac{1+\cos x}{\sin x}\,dx =$

Use L'Hopital's Rule to solve each

14) $\lim_{x\to 3} \frac{8x^2+3x+19}{20-2x^2} =$

15) $\lim_{x\to 0} \frac{12e^x-12}{x} =$

16) $\lim_{x\to 0} \frac{\sin 2x}{\sin 3x} =$

17) $\lim_{x\to 2} \frac{5^x-25}{x-2} =$

18) $\lim_{x\to e} \frac{\ln x-1}{x-e} =$

19) $\lim_{x\to \infty} \frac{\ln 8x-1}{\ln x^2} =$